1. (Previously Presented) A worm gear mechanism for a power-assisted automobile steering mechanism, comprising:

a rotatable cylindrical worm having a plurality of worm teeth that rotate about a first axis, each of the plurality of worm teeth having a first tooth face which includes a first convex region and a first concave region; and

a rotatable cylindrical worm gear having a plurality of worm gear teeth that rotate about a second axis, each of the plurality of worm gear teeth having a second tooth face which includes a second concave region and a second convex region;

where the first axis and the second axis are substantially perpendicular;

where the rotatable cylindrical worm and the rotatable cylindrical worm gear mesh together in a first configuration such that the first tooth face and the second tooth face define a linear contact along one of a plurality of portions of a linear contact region that extends between a base of the worm gear tooth and a tip of the worm gear tooth.

2. (Previously Presented) The worm gear mechanism of claim 1, where the first convex region and the second concave region have a substantially equal first curvature.

3. (Previously Presented) The worm gear mechanism of claim 1, where the first concave region and the second convex region have a substantially equal second curvature.

4. (Previously Presented) The worm gear mechanism of claim 1, where the second concave region is disposed in a region adjoining the base of each worm gear tooth and the second convex region is disposed in a region adjoining the tip of each worm gear tooth.

5-7. (Cancelled)

8. (Previously Presented) The worm gear mechanism of claim 1, where thicknesses of the teeth of the worm and worm gear are adapted to the material properties of the worm and worm gear.

9. (Previously Presented) The worm gear mechanism of claim 8, where the thickness of the teeth of the worm is greater than the thickness of the teeth of the worm gear.

10-11. (Cancelled)

12. (Previously Presented) The worm gear mechanism of claim 1, where the first tooth face and the second tooth face have a profile containing no involutes.

13. (Previously Presented) The worm gear mechanism of claim 1, where the worm is metallic and the worm gear is plastic.

14. (Previously Presented) The worm gear mechanism of claim 1, where each tooth of the worm and worm gear has a concave surface face profile in a region near a base of the tooth and a convex surface face profile in a region near a tip of the tooth.

15. (Previously Presented) A worm gear assembly, comprising:

a worm with a plurality of worm teeth that rotate about a first axis; and

a worm gear with a plurality of worm gear teeth that rotate about a second axis;

where each tooth of the worm and each tooth of the worm gear has a concave profile in a region near a base of the tooth and a convex profile in a region near a tip of the tooth;

where the worm and the worm gear mesh together in a first configuration such that one of the plurality of worm teeth and one of the plurality of worm gear teeth define a linear contact along one of a plurality of portions of a linear contact region extending between the base of the worm and the tip of the worm.

16. (Previously Presented) The gear assembly of claim 15, where the worm is metallic and the worm gear is plastic.

17. (Currently Amended) A worm gear assembly, comprising:

a first gear having a plurality of first teeth each having a first tooth face that rotate about a first axis, each of the first tooth faces having a first profile including a first and a second linear contact surface; and

a second gear having a plurality of second teeth each having a second tooth face that rotate about a second axis, each of the second tooth faces ~~of the plurality of second teeth~~ having a second profile including a third and a fourth linear contact surface;

where the first and the second gears mesh together such that the first linear contact surface of one of the plurality of the first teeth linearly contacts the ~~second~~ third linear contact surface of one of the plurality of the second teeth along one of a plurality of portions of a linear contact region; and

where the first profile and the second profile extend the linear contact region radially through the first, the second, the third and the fourth linear contact surfaces.

18. (Previously Presented) A gear mechanism for power-assisted automobile steering, comprising:

a rotatable first gear having a plurality of first gear teeth configured to rotate about a first axis, each of the plurality of first gear teeth having a first tooth face which includes

a first lower linear contact surface having a first profile; and

a first upper linear contact surface having a second profile; and

a rotatable second gear having a plurality of second gear teeth configured to rotate about a second axis, each of the plurality of second gear teeth having a second tooth face which includes

a second lower linear contact surface having a third profile adapted to the second profile; and

a second upper linear contact surface having a fourth profile adapted to the first profile;

where the first gear and the second gear mesh together such that the first lower linear contact surface of one of the plurality of the first gear teeth linearly contacts the second upper linear contact surface of one of the plurality of the second gear teeth and the first upper linear contact surface of another one of the plurality of the first gear teeth linearly contacts the second lower linear contact surface of another one of the plurality of the second gear teeth; and

where the linear contact extends radially along the surface of the contacted teeth.